

Methodology of Calculating Investment Risk of Economy of Uzbekistan

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Abstract. *The methodology focuses on how well the investment environment in the country is at risk. In this methodology, international indexes which are of international significance, are the most attractive investors, have been accepted as parametric indicators. The purpose of the methodology is to assess the investment attractiveness of the country by identifying the investment risk. At the same time, the main task of methodology is to demonstrate what reforms and measures should be taken in the future to attract foreign investment.*

Key words: methodology, investment, risk, index, investor, rank, average values, factors, foreign investment.

The methodology includes 6 indexes:

-Doing Business:

The concept of "doing business" refers primarily to states, since all businesses

except sole proprietorships are organized under the laws of a state. An enterprise "does business" in a state or locality. As an example of how states view this concept, the California Franchise Board defines doing business as "actively engaging in any transaction for the purpose of financial or pecuniary gain or profit."

-Corruption Perceptions Index:

The Corruption Perceptions Index (CPI) is an index published annually by Transparency International since 1995 which ranks countries "by their perceived levels of public sector corruption, as determined by expert assessments and opinion surveys. The CPI generally defines corruption as "the misuse of public power for private benefit".

The CPI currently ranks 176 countries "on a scale from 100 (very clean) to 0

(highly corrupt)". Denmark and New Zealand are perceived as the least corrupt countries in the world, ranking consistently high among international financial transparency, while the most perceived corrupt country in the world is Somalia, ranking at 9 out of 100 since 2017.

-Share of FDI in GDP

-Index of Gini

In economics, the Gini coefficient (/ˈdʒiːni/ JEE-nee), sometimes called Gini index, or Gini ratio, is a measure of statistical dispersion intended to represent the income or wealth distribution of a nation's residents, and is the most commonly used measurement of inequality. It was developed by the statistician and sociologist Corrado Gini and published in his 1912 paper *Variability and Mutability* (Italian: *Variabilità e mutabilità*).

The Gini coefficient measures the inequality among values of a frequency distribution (for example, levels of income). A Gini coefficient of zero expresses perfect equality, where all

values are the same (for example, where everyone has the same income). A Gini coefficient of 1 (or 100%) expresses maximal inequality among values (e.g., for a large number of people, where only one person has all the income or consumption, and all others have none, the Gini coefficient will be very nearly one). However, a value greater than one may occur if some persons represent negative contribution to the total (for example, having negative income or wealth). For larger groups, values close to or above 1 are very unlikely in practice. Given the normalization of both the cumulative population and the cumulative share of income used to calculate the Gini coefficient, the measure is not overly sensitive to the specifics of the income distribution, but rather only on how incomes vary relative to the other members of a population. The exception to this is in the redistribution of income resulting in a minimum income for all people. When the population is sorted, if their income distribution were to approximate a well-known function, then some

representative values could be calculated.

-Credit index of Fitch Ratings:

Fitch Ratings publishes opinions on a variety of scales. The most common of these are credit ratings, but the agency also publishes ratings, scores and other relative opinions relating to financial or operational strength. For example, Fitch also provides specialized ratings of servicers of residential and commercial mortgages, asset managers and funds. In each case, users should refer to the definitions of each individual scale for guidance on the dimensions of risk covered in each assessment.

Fitch's credit ratings relating to issuers are an opinion on the relative ability of an entity to meet financial commitments, such as interest, preferred dividends, repayment of principal, insurance claims or counterparty obligations. Credit ratings relating to securities and obligations of an issuer can include a recovery expectation (Limitations relating to various rating scales are contained in the document

"Rating Definitions", which is available for download from this page). Credit ratings are used by investors as indications of the likelihood of receiving the money owed to them in accordance with the terms on which they invested. The agency's credit ratings cover the global spectrum of corporate, sovereign financial, bank, insurance, and public finance entities (including supranational and sub-national entities) and the securities or other obligations they issue, as well as structured finance securities backed by receivables or other financial assets.

-Literacy index:

The Adult literacy index (ALI) is a statistical measure used to determine how many adults can read and write in a certain area or nation. Adult literacy is one of the factors in measuring the Human Development Index (HDI) of each nation, along with life expectancy, education, and standard of living.

ALR = Adult literacy rate (ages 15 and older)

Once we have determined the coefficients belonging to all our indexes, we have to summarize coefficients.

Statistical methods typically use average values to summarize several indicators:

- Average arithmetic
- Average geometric

We use a average geometric in our methodology .

$$R = \sqrt[6]{R_1 \times R_2 \times R_3 \times R_4 \times R_5 \times R_6}$$

The R parameter can accept all values from "0" to "1". If it is R = 1, it means that there is a very high investment risk in this country.

If it is R = 0, this situation indicates that the risk is not available.

Indexes	The ranking of Uzbekistan in the index and the total number of countries in the index (2013)	The ranking of Uzbekistan in the index and the total number of countries in the index (2014)	The ranking of Uzbekistan in the index and the total number of countries in the index (2015)	The ranking of Uzbekistan in the index and the total number of countries in the index (2016)	The ranking of Uzbekistan in the index and the total number of countries in the index (2017)
Doing Business	154(185)	146(189)	141(189)	87(189)	87(190)
Corruption Perceptions Index	168(177)	166(175)	153(168)	156(176)	157(180)
Share of FDI in GDP	0,036	0,035	0,037	0,053	0,067
Index of Gini	0,28	0,27	0,27	0,26	0,26
Credit index of Fitch ratings	B+	B+	BB-	BB-	BB-

	Literacy index	26(180)	26(180)	26(180)	26(180)	26(180)
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The table above is not exactly compatible with each other, for example “Share of FDI in GDP” is given coefficients. Secondly, We need to change “Doing Business”, “Corruption Perceptions Index” and “Literacy index” into coefficients. Thirdly, “Credit index of Fitch ratings” it is necessary to introduce the method of expression of the coefficients in performance.

“Literacy index” shows the percentage of people who are able to read and write, it is compared to the

adult population. We took ranking of country and in the “Literacy index”.

We adjust each indicator to the methodology. We divide rankings of Uzbekistan in “Doing Business”, “Corruption Perceptions Index” and “Literacy Index” into number of countries in the these indexes (indicator):

	2013	2014	2015	2016	2017
Doing Business	154/185= 0,83	146/189= ,77	141/189= ,75	87/189= 46	87/190= 0,46
Corruption Perceptions Index	168/177= 0,95	166/175= ,95	153/168= ,91	156/176= ,89	157/180= 0,87
Literacy index	26/180= 0,144	26/180= ,144	26/180= ,144	26/180= ,144	26/180= 0,144

“Share of FDI in GDP” the investors are interested in the national economy, it is the lower than the “0” and it is also the lower than the interest rate. Also, “Index of Gini” When it analyzes the link between the index and foreign investment in the country, we can see

that countries whose coefficient of “Index of Gini” are high, they attracted more foreign investment into their national economy than others. In our methodology, we calculate each coefficient as “1” minus “index”, so it is given that investment risk is so negative.

	2013	2014	2015	2016	2017
Share of FDI in GDP	1- 0,036=0,964	1- 0,035=0,965	1- 0,037=0,963	1- 0,053=0,947	1- 0,067=0,933
Index of Gini	1- 0,28=0,72	1- 0,27=0,73	1- 0,27=0,73	1- 0,26=0,74	1- 0,26=0,74

For “Credit index of Fitch ratings” we made coefficients for all variants of indicators:

Fitch Ratings Long Term Rating Scale ¹

	Fitch	Coefficient for calculating investment risk
	AAA	1/22=0,045
	AA+	2/22=0,090
	AA	3/22=0,136
	AA-	4/22=0,182
	A+	5/22=0,227
	A	6/22=0,272
	A-	7/22=0,318
	BBB+	8/22=0,364
	BBB	9/22=0,409
0	BBB-	10/22=0,454
1	BB+	11/22=0,500
2	BB	12/22=0,545
3	BB-	13/22=0,591

¹ <https://mof.gov.il/en/PublicationsAndReviews/TheCreditRating/Pages/CreditRatingMethodology.aspx>

4	B+	14/22=0,637
5	B	15/22=0,682
6	B-	16/22=0,727
7	CCC+	17/22=0,773
8	CCC	18/22=0,818
9	CCC-	19/22=0,864
0	CC	20/22=0,909
1	C	21/22=0,954
2	D	1

So, after changing “Credit index of Fitch ratings” into coefficients, it will be like that:

Credit index of Fitch ratings	0,637	0,637	0,591	0,591	0,591
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We've adjusted all the indicators to our methodology. Now, looking at a single table, we consider the country's investment risk.

Indexes	2013	2014	2015	2016	2017
Doing Business	0,830	0,770	0,750	0,460	0,460

Corruption Perceptions Index	0,95 0	0,95 0	0,910	0,89 0	0,870
Share of FDI in GDP	0,96 4	0,96 5	0,963	0,94 7	0,933
Index of Gini	0,72 0	0,73 0	0,730	0,74 0	0,740
Credit index of Fitch ratings	0,63 7	0,63 7	0,591	0,59 1	0,591
Literacy index	0,14 4	0,14 4	0,144	0,14 4	0,144
Investment Risk of country	0,60737	0,60110	0,58681	0,53862	0,53525

Based on our methodology, we have calculated the level of investment risk of the Republic of Uzbekistan from 2013 to 2017. The results show that investment risk in the national economy of the Republic of Uzbekistan is significantly decreasing from year to year. In particular it was almost 0.63% in 2013, by 2017, this figure is slightly higher than 0.53.

The main reason, in “Doing Business” our country has risen from 154 to 87 in 2013, and the "Literacy Index" has always been high.

In recent years, a special attention has been paid to the fight

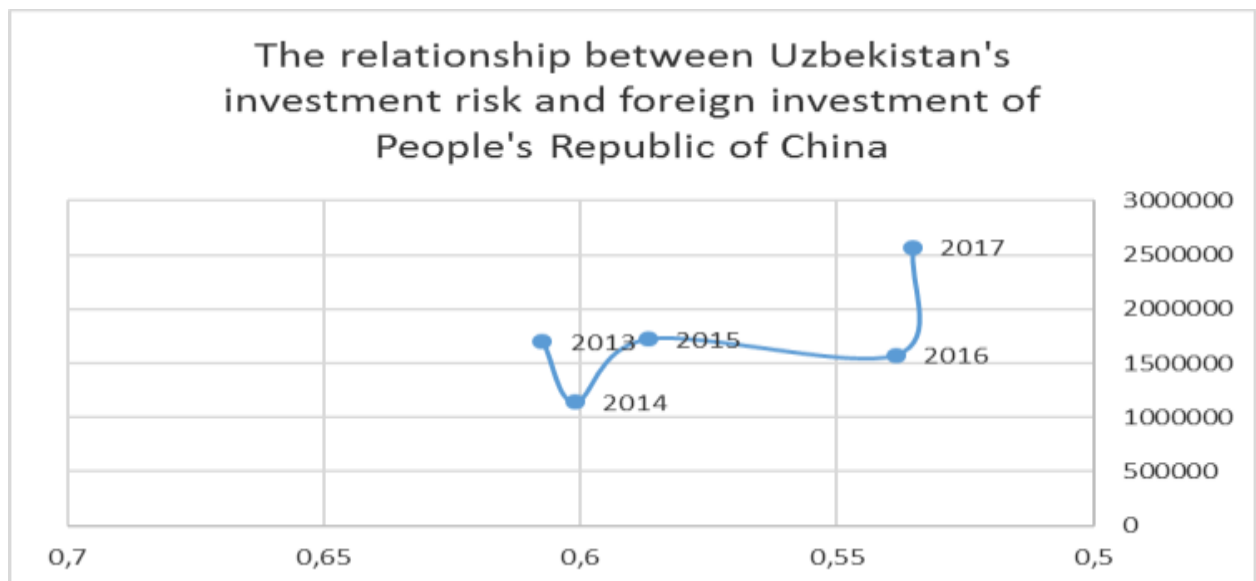
against corruption in the country and the legal framework and precise system of its prevention are being improved. The Law of the Republic of Uzbekistan "On Combating Corruption" of 3 January 2017 is as a result of the Decree of the President of the Republic of Uzbekistan dated serious anti-corruption.

As a result of these measures, we have risen from 168 place (2013) to 157 place (2017) at the International Corruption Perceptions Index. However, the 157 place among 180 countries is not a good indicator. Only in the near future we will only increase the level of

investment risks of our national economy by a few decades.

Since the first years of independence, the Republic of Uzbekistan has demonstrated a relatively small coefficient in the country's "Gini Index" because of its adherence to the principles of "socially-oriented" market economy. It will be Uzbekistan as well as in developed countries in "Gini Index" by The liberalization of the economy, the provision of broad opportunities to small business and private entrepreneurship .

The State Statistics Committee of the Republic of Uzbekistan also takes into consideration the credits used to calculate the foreign investments attracted to our national economy. That is why we have included the "Credit Index of Fitch Ratings" into our methodology. The reforms in the system of the financial system are evaluated by the international rating agencies naturally in the international financial institutions as well as investors, it attracts attention to the economy of Uzbekistan.

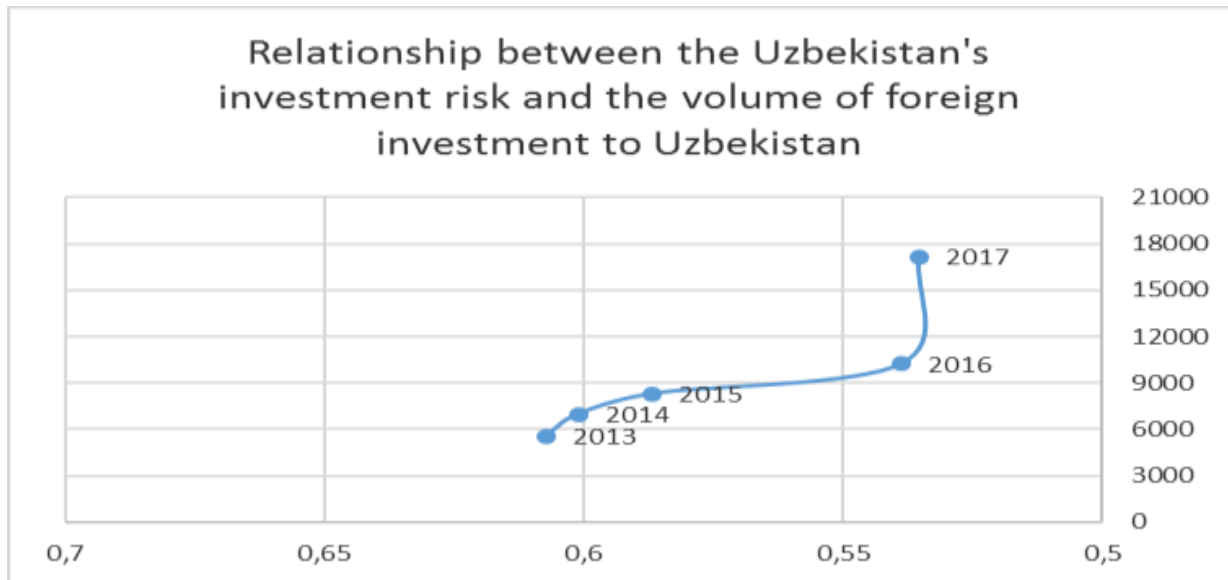


The above chart shows the relationship between the country's

investment risk level and the volume of foreign investment to Uzbekistan. The

nominal volume of investments from the Republic of China to Uzbekistan grew by more than 1.5 times in 2017 (2569276, million soums) it was in 2013

(1701579,0 million soums). The methodology we have built not only scientific, but also practical.



Our second graph is a logical continuation of our first graph, it reflects the relationship between the country's investment risk and total foreign investment to Uzbekistan's national economy.

According to our methodology, the country's investment risk and total foreign investment to the country have the same opposite of what we expect. Specifically, the country's investment risk in 2017 (0.53525) is slightly lower than in 2013 (0.60737), The volume of total foreign investments increased by 3.1 times in 2017 (17174.4 billion soums)

compared to 2013 (5538.1 billion soums).

Our analysis shows that attraction of Chinese investments differs from other countries' investment rather than attraction of investments. Therefore, "Universal" measures to attract foreign investment should not have focused more on "professional" measures.

Well, what kinds of tasks can we solve through this methodology?

Firstly, we are building new enterprises which produce import-substituting products in the domestic

market and this can give opportunity to open new job places.

Secondly, Enterprises which is in the country if we expand their production activity and supply their prospective development, we can multiply the size of private capital of national enterprises.

Thirdly, the technological modernization of the national economy will be carried out and new equipment and modern equipment will be installed in the national industrial production, which will be produced national products that can compete on the world market.

Fourthly, the national manufacturers will be created opportunity prospective projects at the account of credit resources.

Fifth, the national economy is integrated into the global economy.

So, investments, it is an important factor of economic growth, it is either at the macro level (national economy) or at the micro level (enterprise level) but there is a question as to what national producers need to do to attract them.

For the attraction of investments into the economic activities of national manufacturers, they should do the following tasks at the enterprise level.

Firstly, they need to have a well-developed and perspective business plan. Investors always try to find out how their inputs will be useful in the future.

Secondly, investors only finance their investment projects for trustworthy enterprises. Making money for hidden and suspected businesses is a profitable divestment, therefore, the national enterprises should have high financial and economic ratings.

Thirdly, they need to be transparent and open. For this purpose, the accounting documents must be the level of their requirements and the final results of the financial and economic activities of the enterprise should be publicly declared to the members of the public through the media.

It should be noted that investing in the national economy is largely dependent not only on the ratings of the enterprises, but also on the geopolitical location of the country and its domestic policy. Investors choose the most stable countries to invest in capital.

Therefore, all countries in the world are trying to do to reduce investment risk. As in all the countries of the world, our country is also working to increase the attractiveness of the

investment climate in the national economy.

In Uzbekistan, there are some questions about having good climate to attract foreign investors.

Specifically:

- Political stability in the country;
- Formation of a legal framework that protects private property and competition;
- the infrastructure to support the investment process;
- favorable geographical location of the country;
- high potential for agro-industry development and wealth of country's mineral and raw resources;
- availability of highly skilled labor resources;
- insufficient volume of domestic market sales for sale.

The system of privileges and financial and economic incentives for foreign investors is an important factor of investment attractiveness. They provide direct foreign investment in the manufacturing sector, in particular, to the industry with high export potential.

Together with this, one of the most important directions of attraction of foreign investments into the national economy is formation of special economic zones. Navoi, Jizzakh, Angren, Gijduvan, Kokand, Urgut, Khazarasp, free economic zones are being established in our country, and they are effectively working on their activities today.

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